

URRIOLA'S TEST FOR MALARIAL INFECTION

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Urriola (1911) has described a new urinary test for infection with malaria, regarded by him as pathognomonic. His test is the discovery of malarial pigment in the urine. The urine is centrifuged, and the deposit examined under a high magnification. He states that four types of pigment granules may be found in malarial cases: (1) very fine granules massed together; (2) larger granules arranged in similar groups; (3) large masses varying in form; (4) granules included within leucocytes and hyaline casts. The colour is usually an intense black of the Chinese ink type, blue granules may be seen, and rarely some which are yellow ochre in colour. This malarial pigment cannot be confused with the granules found in other febrile disorders, for it is much more abundant. Notwithstanding this, more than one drop of deposit should be examined, and half an hour may have to be devoted to the search.

To test the value of this sign, the urines of ten cases of malaria have been examined by me at the Liverpool School of Tropical Medicine.

Of the ten cases examined, nine may be classed as having been infected with *Plasmodium falciparum*, of which one had a mixed infection of *P. vivax* and *P. falciparum*, and one had a history of blackwater fever a few days before admission. The tenth case was an infection with *P. vivax*. All these cases showed more or less pigment which might be classified under the first three types of Urriola.

Of the nine malignant cases five were old chronic ones, and showed fairly abundant pigmented leucocytes. Three were cases

which did not date their first infection further back than two months. In one of these cases no pigmented leucocytes were found, while in the other two they were only found after a prolonged search. The ninth case was apparently cured, and had no history of fever for more than two years. In this case the pigment was scanty, and only one pigmented leucocyte was seen. In three of the chronic cases pigmented hyaline casts were found. The case of benign tertian showed free pigment, but none in leucocytes or casts.

Ten control urines were examined from normal persons and from patients with renal disease, anaemia, chronic dyspepsia and bronchitis. In all of these except one, pigment was found in fairly large masses, but no pigmented leucocytes or casts were seen.

The urine which did not contain any pigment was passed directly into the centrifuge tube.

It was found that urine which was collected in the ordinary way contained large amounts of pigment derived from dust in the air, urinals, centrifuge tubes, slides, etc., and that the greater the precautions taken to exclude these sources of contamination the less was the amount of pigment present in normal urines. It was impossible to exclude absolutely these sources of error even when the urine was withdrawn by a catheter directly into the centrifuge tube.

CONCLUSIONS

On account of the small number of cases examined it is impossible to make any definite statement as to the value of Urriola's test, but it would appear to me that:—

(1) It is almost impossible to exclude the possibility of the pigment derived from extraneous sources finding its way into the urine, and therefore the presence of small quantities of fairly large masses of pigment appears to me to be of no diagnostic value.

(2) The trouble necessary to exclude the possibility of extraneous pigment appears to be too great in comparison with the value of the test.

(3) As far as can be concluded from the few cases examined, the presence of pigmented leucocytes or casts appears to be of more

value than free pigment in making a diagnosis of present or past malaria, especially in chronic cases.

(4) The presence of pigmented leucocytes or casts does not seem to be an indication of active malaria, but rather of the fact that the patient has at some time or other had malaria. Two of the above cases were examined just before being discharged as cured, and one of the above cases had had no signs of malaria for two years, yet they all showed pigmented leucocytes. The presence of such pigment in the urine probably represents an attempt by the body, both during an infection and after the infection has passed off, to get rid of the pigment deposited in the tissues.

I wish to thank Dr. David Thomson, under whose care the cases were, for the trouble he has taken.

REFERENCE

- URRIOLA, C. L. (1911) 'Sur un nouveau signe pathognomonique du paludisme.'
Semaine Medicale, Jan. 4.